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Ecosystems are often depicted as pyramids, with apex predators at the top and decomposers at the base. While tigers and hornbills capture attention, the vital role of leaf litter and its decomposers is often overlooked. Fallen leaves, bark, and twigs fuel nutrient cycling, supporting fungi, bacteria, and insects. Termites, for instance, break down cellulose, nourishing other species. Yet, harmful practices like burning litter threaten this balance. **Asad R. Rahmani** draws our attention to forest floors. He believes that protecting leaf litter means preserving the very foundation of biodiversity.

From Nest to Net –
The Silent Struggles of Sea Turtles

In January 2022, **R. Surya** – a young conservationist – embarked on a nocturnal sea turtle survey in Tamil Nadu's mangroves – unaware that the experience would change his life. Witnessing both the wonder of new life and the tragedy of bycatch, he found his calling.Now, he fights to protect India's marine giants.

PHOTO STORY

Laughingthrushes of Indian Himalaya

For over four decades, **Rajat Bhargava's** fascination with Indian laughingthrushes has endured. Unlike today's birders, his first encounters were not in the wild, but in bamboo cages at his Meerut home. As a child, he watched these birds, captivated by their laughter-like calls. Now, as an ornithologist, he studies them in their natural habitat, uncovering their secrets and the threats they face. This is his journey – from a backyard observer to a field researcher.

Others

Editorial...

Let me begin by expressing my heartfelt thanks for your wonderful feedback. I am delighted to know that you appreciated the improved presentation of Hornbill, especially its content. Such feedback inspires our team to strive better and also helps us understand if we are delivering what you expect – and whether we are offering something new and engaging for you.

We hope this issue will once again meet your expectations. With winter behind us and summer setting stronger, the forest trees have already begun to shed their leaves. Nature's message to them is loud and clear: survive this lean season and conserve what you have gained. A fitting article that explores this phenomenon is "Beauty of the Forest Litter" by Dr Asad Rahmani. He explains the vital ecological role of fallen leaves, bark, and twigs in nutrient cycling, and how they support fungi, bacteria, and insects like termites. The article also highlights how burning this litter poses a serious threat to biodiversity at its very foundation.

India's mangroves, along both its east and west coasts, are under increasing threat from infrastructure projects. Mechanised overfishing has further exacerbated the problem, impacting fish populations and endangering marine species like sea turtles. This issue features an interesting article for developers and the commercial fishing industry alike. R. Surya, a young conservationist, shares insights from his nocturnal sea turtle surveys in Tamil Nadu's mangroves, shedding light on the turtles' incredible lives and the looming threat of bycatch. He now fights passionately to protect India's marine giants.

Having spent most of my life inland, my visit to the east coast – particularly Point Calimere in Tamil Nadu – was a revelation, especially witnessing the vibrant red crabs. The Reader's Space article by Alok Ganguly on 'Saving the Red Beach (Lal Kakra Beach)' in Tajpur, Bengal, now makes me eager to visit. He writes, "This stunning red colour view is especially prominent during the evening, making the beach a photographer's paradise." Sadly, this pristine beach – and Odisha's Dogra Beach in Balasore District – is now suffering due to plastic waste, pollutants, and vehicular traffic, all of which threaten its wildlife, including migratory birds.

I also reviewed the book LIVING WITH BIRDS: THE MEMOIR OF ONE OF INDIA'S GREATEST ORNITHOLOGISTS, by Dr Asad Rahmani (Juggernaut, 2024) – a must-read! Another recommendation is ICONIC TREES OF INDIA by S. Natesh (Roli Books, 2024), reviewed by tree lover and former BNHS Honorary Secretary Dr Ashok Kothari. Both books deserve a place on your reading list.

The Bombay Natural History Society (BNHS), India's oldest NGO, recently celebrated 60 years at its iconic 'Hornbill House' on March 13. Located on Shaheed Bhagat Singh Road, opposite Lion Gate at Mumbai's Kalaghoda area, the building

has a rich history. To mark the occasion, we launched commemorative products including a coffee mug featuring the great pied hornbill – BNHS's mascot, inspired by 'William', the hornbill once housed at BNHS. While buildings are important, it is the people who manage and conserve them that truly protect our planet's natural treasures.

BNHS was founded in 1883 when eight nature-loving Bombay residents gathered at the Victoria and Albert Museum on September 15. These founding members – Dr D. MacDonald, E.H. Aitken, Col. C. Swinhoe, J.C. Anderson, J. Johnston, Dr Atmaram Pandurang, Dr G.A. Maconochie, and Dr Sakharam Arjun – set the foundation. We must remember the key contributions of past office bearers and scientists. One such visionary was Donald James Mackay, 1st Baron Reay and Governor of Bombay, who served as BNHS's first President from 1886 to 1890. Our Honorary Secretary Dr Bharat Bhushan has written a brief tribute to his work.

Some landscapes in India are renowned for their natural wealth – Jim Corbett National Park being one of them. Often, we think only of tigers, but Ram Gopalakrishnan invites us to explore beyond. His article documents rare bird sightings in Corbett's Himalayan foothills, including the koklass pheasant, cheer pheasant, brown-fronted woodpecker, and the elusive cupwing – offering new perspectives for birders planning future trips. Also featured is "The Tale of a Black-naped Monarch" by Aniket Pawar and Sachin Ranade – an ode to this charming bird.

This is the third issue of *Hornbill* under the 'Systema naturae 2033' initiative. Inspired by the 1983 Encyclopaedia of Natural History, edited by Robert Hawkins and published by BNHS, this initiative, led by Dr Bharat Bhushan, will culminate in the BNHS 150 Years omnibus on natural history. This issue includes expert contributions from Dr P. Sathiyaselvam and Dr Rajat Bhargava.

When we think of wetlands, we often envision migratory birds, but seldom consider native species that rely on these habitats. Dr P. Sathiyaselvam, Deputy Director, BNHS and an expert in satellite tracking, highlights this in 'Fishing Cat – Endangered Shadows of Vanishing Wetlands in India'. His decades of research offer invaluable insights.

I am sure readers will also enjoy the photo story 'Laughingthrushes of the Indian Himalaya' by Dr Rajat Bhargava, Senior Ornithologist at BNHS. His fascination with laughingthrushes spans over four decades – from his childhood encounters in bamboo cages at his home in Meerut to field observations in the wild.

I work diligently to bring you solid Conservation Notes from across India, highlighting pressing environmental concerns of various ecosystems. In this issue, I share my views on the recent Supreme Court order concerning sacred groves and its implications in my article 'Supreme Court to the Rescue of Sacred Groves'. I hope it encourages readers to use this opportunity to protect these spiritual forests – nature's temples – in their respective states.

Kishor Rithe

Beauty of the Forest Litter

Text and Photographs: **Asad R. Rahmani**

In introductory ecology texts designed for young readers, ecosystems are often illustrated as pyramids. Apex predators sit at the top, followed by layers of prey species, descending to a vast base where decomposers – such as bacteria, fungi, and termites – thrive in an often-overlooked, unseen realm. Creatures at the pyramid's peak, like tigers, lions, leopards, raptors, and ecosystem influencers such as elephants and hornbills, draw the most attention. However, the small but essential decomposers, indispensable to the ecosystem's functionality, often go unnoticed.

At the foundation of the food chain lie the primary producers – plants – on which the entire pyramid rests. Above them are the primary consumers, then secondary consumers, and ultimately tertiary consumers, who occupy

Sal Forest and leaf litter of Dudhwa

the apex predator level. Primary consumers, including herbivorous insects, feed on plants and become prey for secondary consumers like birds, small mammals, amphibians, reptiles, and larger insects. At the highest levels, tertiary consumers such as tigers and lions prey on both primary and secondary consumers and generally lack natural predators of their own.

Ecologists categorize these layers as 'trophic levels', signifying an organism's position in the food chain. Plants occupy trophic level 1, while apex predators inhabit levels 4 or 5, depending on the complexity of the food web. While this model is helpful, it can oversimplify the intricate and interconnected realities of nature.

It is essential to understand the often-overlooked significance of forest leaf litter. Forest visitors frequently focus on spotting apex predators or large mammals, overlooking the rich diversity of smaller organisms that sustain the forest's ecology. These creatures reside in the leaf litter or below ground, where they play critical roles in recycling nutrients across the ecosystem's trophic levels.

The word 'litter' commonly conjures images of human-made waste like plastic. While plastic litter signifies human negligence and poor waste management, forest litter – composed of fallen leaves, flowers, bark, twigs, and branches – has its own ecological charm. Ants, termites, beetles, grasshoppers, bacteria, and fungi begin the process of breaking down forest litter, recycling

Flowers of Pallas provide nectar to many species and finally decompose and become a part of soil

Chinar leaves become orange, yellow, and red during autumn

nutrients, and enhancing soil fertility. In nature, nothing is wasted; each ecosystem supports specific decomposers and consumers suited to its primary producers and other organisms.

The amount of litterfall varies based on factors such as forest type, tree age, canopy cover, seasonal changes, altitude, and decomposition rates. For instance, tropical lowland forests have high decomposition rates due to warm, humid conditions, leaving a thin litter layer. Temperate forests, with slower decomposition, accumulate a thicker layer of litter. Seasonal shifts also affect decomposition rates within a given region. Leaf litter helps retain soil moisture by cooling the ground surface and holding moisture in the decomposing material. Flora and fauna that break down litter also contribute to soil respiration.

Langurs are considered messy eaters but their role in forest ecosystem is important as they provide inaccesible leaves and fruits to ground dwelling animals

In the dry deciduous forests of central India and the terai forests of northern India, substantial amounts of litter accumulate during leaf fall, particularly before the monsoon season. While working on the Bengal florican in Dudhwa during the 1980s, and later during several subsequent visits, I was continually struck by the beauty of sal *Shorea robusta* forest litter. My gaze often drifted to the tree canopy, seeking out the great slaty woodpecker *Mulliripicus pulverulentus* among mature sal trees, but I never overlooked the busy ants and collembola decomposing leaf litter below. The scaly-bellied woodpecker *Picus squamatus* was often seen foraging in the litter, searching for food.

What becomes of forest litter? Unlike human-generated plastic waste, nature leaves no residue. For every fallen leaf, flower, fruit, bark, or branch, a community of decomposers – including fungi, insects, larvae, worms, molluscs, nematodes, and bacteria – starts the process of nutrient cycling. For example, certain bacteria within termite guts convert plant cellulose into protein, and termites themselves are prey for other creatures like birds, amphibians, reptiles, and mammals. As litter breaks down, it releases nutrients into the environment, with some portion forming humus, a lasting component of the soil. The litter layer helps retain soil moisture, regulates ground temperature, and provides an enduring source of energy for macro- and micro-organisms, making it essential to the forest's ecological balance.

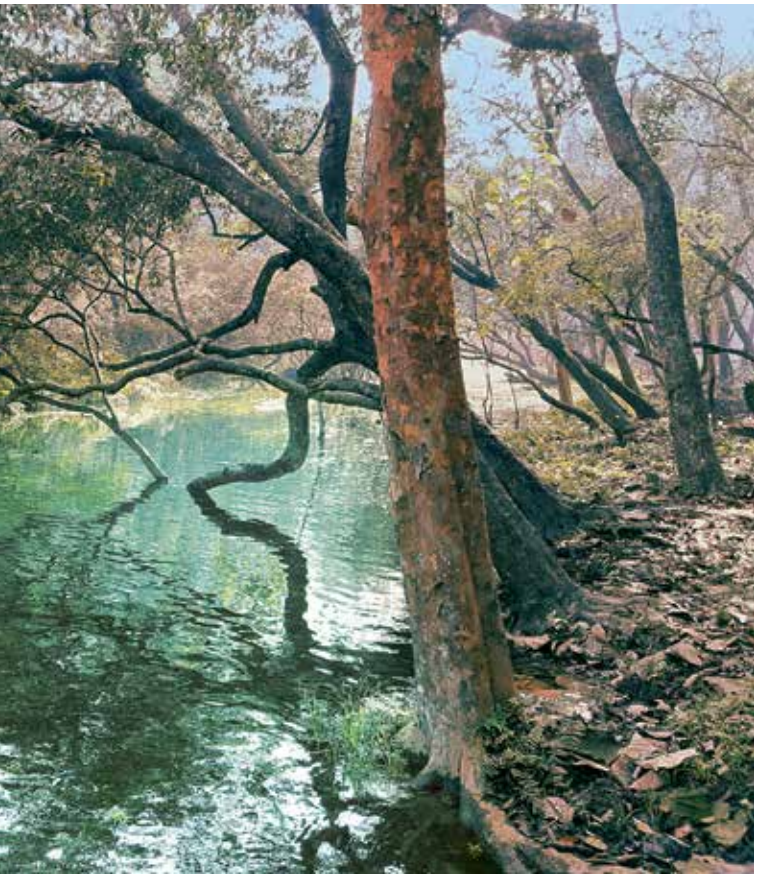
In the intricate web of a forest ecosystem, the forest floor is a dynamic space, allowing chemical elements to enter and exit. Rivers, streams, and pools in forests derive productivity from fallen leaves, twigs, and branches, which serve as nurseries for fish, frogs, and aquatic insects. Small pools covered with litter offer egg-laying habitats

for dragonflies and damselflies. Thus, plant litter becomes a crucial energy and nutrient source in stream ecosystems, and its decomposition is essential to nutrient cycling.

Charles Darwin highlighted the significance of earthworms in litter decomposition in his 1881 work, *The Formation of Vegetable Mould Through the Action of Worms, with Observations on Their Habits*. India is home to over 400 of the world's 3,700 earthworm species, but widespread pesticide and herbicide use has dramatically reduced their numbers in many urban and semi-urban areas.

In every forest visit, I seek out termite mounds, which I consider one of the best indicators of a healthy ecosystem. The size and shape of a termite mound, or 'castle', vary depending on the species and habitat. Although I am not a termite expert, I find the most impressive termite mounds in northern India's terai forests – some towering up to four meters in height. Each mound is a labour of love, crafted by millions of termites working tirelessly to recycle forest litter. Next time you visit a tiger reserve, take a moment to appreciate the contributions of these tiny engineers.

Leaf litter in Narcondam Island



There is a need to study importance of litter in forest streams

Regrettably, burning leaf litter and underbrush is still a common forestry practice, even in protected areas. Overgrazing by livestock also depletes leaf litter and degrades soil. Villagers and forest departments often burn litter to promote 'new grass growth' for livestock, but this practice is controversial and requires long-term research and management in India. Habitat-specific studies are needed because solutions for one forest type may not apply to another.

If this article sparks even a small interest in India's leaf litter ecology, I will be content, knowing that some wildlife biologists and ecologists are now looking to the foundation of the ecological pyramid – the bedrock of forest ecosystems – rather than solely focusing on the apex species. ■

Asad R. Rahmani is a renowned ornithologist, and former Director of BNHS. He is now a member of the BNHS Governing Council.

From Nest to Net –
The Silent Struggles of Sea Turtles

Text, Illustration, and Photographs: **R. Surya**

Olive ridley young ones

Two years ago, a remarkable experience shaped my journey into marine conservation. Today, I work as a Project Assistant with the Wildlife Conservation Society – India's Ocean Giants team, dedicated to reducing marine megafauna bycatch along India's coast. Through participatory research, community outreach, and partnerships with fisheries and agencies, we strive to protect marine life while ensuring sustainable livelihoods. But how did this journey begin? Let me take you back to January 2022, when an unforgettable night changed my life forever.

The beginning of 2022 brought an experience unlike anything I had ever known. For the first time, I participated in the synchronized waterbird census with the Pichavaram Forest Department in Tamil Nadu. The survey took place among the mangrove patches, where we navigated through the waterways in a small recreational boat. Exploring this unique habitat had always been a dream, and the opportunity felt surreal. However, the true turning point came later that night – a moment etched forever in my memory.

The forest team had organized a nocturnal sea turtle survey in the Pichavaram mangrove forest, focusing on olive ridley turtle nests. Convincing my college staff and parents to let me participate was no small feat, but my passion for conservation won them over. Late at night, as the moon cast a silver glow, I arrived at the Pichavaram Forest Department office. The atmosphere buzzed with anticipation as college seniors, juniors, and frontline forest staff gathered for the survey. The same boat from the

A nesting Olive Ridley Turtle

morning's bird survey awaited us – only this time, under the moonlit sky.

Stepping onto the boat was exhilarating. I claimed a spot at the edge, eager to soak in every moment. Darkness enveloped us for a few minutes until the moon's gentle glow illuminated the way. The mangrove leaves rustled softly, and the starlit water shimmered as the boat glided forward, creating ripples like a comet streaking across the sky. The cool droplets of water on my face added to the magic. After a 20–30-minute ride, we reached the estuary and began our short walk toward the shoreline. Two local fishermen joined us – guardians of the coastline's secrets.

We were in two groups, each scanning the beach for turtle tracks. The waves crashed against the shore as we embarked on our mission. For nearly an hour, we searched in vain. Then, one of my juniors spotted movement in the muddy waters. An olive ridley turtle had been pushed ashore by the waves. We froze, watching in awe as the soon-to-be mother crawled forward, searching for a nesting site.

Her determination was inspiring. I hoped fervently that this would not be a false crawl – when a turtle, disturbed by its surroundings, returns to the ocean without laying eggs. My experience with the Student Sea Turtle Conservation Network (SSTCN) had taught me how vulnerable these creatures were. To my relief, she began digging a hole in the sand with her hind flippers. Her rhythmic movements

Turtle dance of nesting Olive Ridley

were mesmerizing – each sweep of her flippers a delicate dance, a 'Turtle Dance'. It was a breath-taking display of nature's resilience and hope.

After laying her eggs, she carefully covered the nest, ensuring its safety from predators before retreating to the ocean. Following standard protocols, we recorded data – measuring her length and width, noting the nest's GPS location, and finally, gently excavating the eggs. Over 100 soft-shelled eggs were collected and safely relocated to a protected nesting site. Contrary to common belief, turtle eggs are not hard-shelled initially; they are soft and pliable, hardening over time.

With renewed energy, we resumed our search. But the night held another, more sobering lesson. A short distance away, we discovered the lifeless body of an olive ridley turtle entangled in discarded fishing gear. The stark contrast between the joy of witnessing new life and the heartbreak of death was overwhelming.

Curious about the increasing number of stranding incidents, I spoke with local fisherfolk. They shared troubling accounts of dead sea turtles frequently washing up along the coast. Their stories extended to other marine megafauna, including alarming events like the mass stranding of 45 whales in Tuticorin in 2016 and a dugong stranding in Pudukkottai in 2020. These accounts highlighted the grim reality facing marine life – bycatch, the unintentional capture of non-target species in fishing gear, emerged as a significant concern.

Bycatch is a pervasive issue, often caused by modern non-selective fishing gear that traps not only target species, but also turtles, dolphins, and seabirds. Abandoned fishing nets, known as ghost nets, exacerbate the problem. Statistics from the International Whaling Commission reveal that over 300,000 cetaceans die annually due to bycatch. The overlap between fishing areas and critical marine habitats only worsens the crisis.

Turtle track mark

Hatchery in the morning

Hatchery at night

Determined to make a difference, I immersed myself in learning. My mentor, Dr Anant Pande, gifted me a book titled MARINE TURTLES OF THE INDIAN SUBCONTINENT. Through its pages, I learnt how sea turtles in India were once on the brink of disappearance. In the 1960s and '70s, turtles were hunted extensively in the Gulf of Mannar and Odisha. Thousands were killed annually for meat, and their eggs were harvested in staggering numbers. Conservation efforts gained momentum in the late 1970s, leading to legal protection under Schedule I of the Indian Wild Life (Protection) Act, 1972.

Technological solutions like Turtle Excluder Devices (TEDs) have since been introduced to mitigate bycatch. Developed in the 1980s by the U.S. National Marine Fisheries Service, TEDs are modifications to trawl nets that allow turtles to

Olive Ridley turtle eggs collected for safe keeping

Olive Ridley hatchling

Hatchlings moving towards the sea

escape while retaining the target catch. In India, field trials of indigenous TED designs have shown promising results. For instance, Odisha waters reported a 100% exclusion of turtles from trawl nets. However, widespread adoption remains a challenge due to fishers' concerns about potential shrimp loss.

Community engagement is critical for success. Across India, NGOs are raising awareness among fishing communities, emphasizing their role in conservation. State governments have also implemented initiatives to support fishers who rescue marine animals. For example, Tamil Nadu's Forest Department compensates fishers for releasing turtles or dugongs, fostering a sense of stewardship.

Despite these efforts, challenges persist. Accurate bycatch data is scarce, and socioeconomic factors must be considered. Fishing is a livelihood for many coastal communities, and sustainable solutions must balance conservation with economic realities.

Fast forward to March 2022 – the eggs we relocated finally hatched. Over 75 energetic hatchlings emerged, their tiny flippers propelling them toward the ocean. Watching them embark on their journey was an emotional moment, a testament to the resilience of life and the impact of collective effort.

The experience of witnessing an olive ridley turtle nest, contrasted with the heartbreak of encountering bycatch victims, has forever shaped my perspective. It underscores the urgent need for action to protect marine life. By integrating regulatory measures, technological advancements, and community involvement, we can ensure that future generations continue to witness the awe-inspiring 'Turtle Dance' and the hatchlings' journey to the sea. Together, we can turn hope into lasting change. ■

Surya R. is a Marine biologist and illustrator, specializing in dugong conservation, stakeholder engagement, and creative science communication.

Saving the Red Beach of Bengal

Lal Kakra Beach, named after the Bengali term for red crabs, is a captivating destination located at Tajpur in West Bengal's East Medinipur District. Known for its vibrant red crabs, mesmerizing sunsets, and rich fishing culture, the beach has become a popular weekend getaway for adventure seekers and social media enthusiasts.

The red crabs are the main attraction here, creating a spectacle that distinguishes this beach from others. It is estimated that over a hundred thousand red crabs cover the shore, resembling a vast, crimson floral carpet spread across a large canvas. This stunning view is especially prominent during the evening, making the beach a photographer's paradise.

The location is also conveniently close to popular spots like Digha, Shankarpur, and Mandarmani, enhancing its appeal. During low tide, the sea recedes significantly, revealing an expanse of wet sand perfect for leisurely walks and shell collecting. As high tide approaches, waves engulf the entire beach, and visitors can retreat to two-tiered shanties to watch the frothy waves and enjoy the local delicacies such as *maach bhaja* (fried fish). The blend of natural beauty and cultural flavours makes for an unforgettable experience.

While exploring the beach, visitors are greeted by red crabs, ranging from tiny to larger ones, especially after 4:00 p.m. These fascinating creatures love to play hide-and-seek, quickly retreating into their holes at the slightest sound of footsteps. The nearby lagoon offers another highlight, with breath-taking sunrises and sunsets against the backdrop of the crab-filled beach. However, this natural treasure faces increasing threats from human activity.

The growing popularity of offbeat destinations like Tajpur is a double-edged sword. While it brings economic opportunities, it also invites environmental degradation. Social media exposure has driven a surge in tourism, converting once-tranquil spots into bustling tourist hubs. This influx often leads to the destruction of local flora and fauna. For instance, I witnessed tourists driving SUVs and ATVs along the beach, crushing marine life under their wheels. Despite regulations prohibiting such activities, enforcement remains weak.

The expansion of suburban train services to Digha has further increased footfall in Mandarmani, Tajpur,

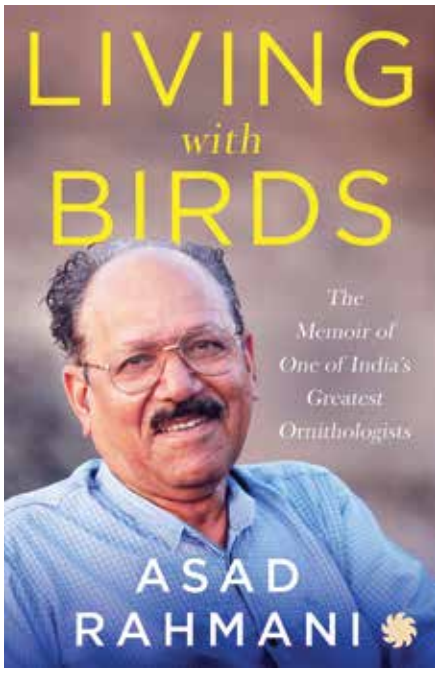
and surrounding beaches. Consequently, the Mandarmani shoreline is now littered with plastic waste and other pollutants, posing severe threats to local wildlife. There is no mechanism to prevent tourists from carrying plastics or littering, such as fines or awareness campaigns. Without stricter regulations, the problem will only worsen, jeopardizing the delicate ecosystem.

The plight of Lal Kakra Beach mirrors that of other coastal regions. For example, Odisha's Balasore District boasts Dogra Beach, another haven for red crabs. Unlike Tajpur, Dogra Beach remains relatively untouched, with millions of crabs thriving in their natural habitat. Protecting them must become a priority before it is too late. Banning vehicles like SUVs and ATVs from beaches is one step toward preserving marine life. Without intervention, we risk losing not only the crabs but also the migratory birds, such as waders, that frequent these shores in winter.

During my visit, I stayed at a tranquil resort surrounded by casuarina trees and a few domesticated turkeys and guinea fowls. I tried raising awareness among locals and hoteliers about the importance of sustainable tourism. However, the challenge is significant. Many hoteliers claim they do not encourage driving on the beach, attributing the problem to local youths seeking quick profits. Yet, enforcement remains lax, and the situation persists.

Environmentalists and local authorities need to step up their efforts. Regular monitoring and strict penalties for violations, public awareness campaigns could foster more responsible behaviour among tourists and protect the *lal kakra* on the beaches of Bengal!

– Alok Ganguly
Kalyani, West Bengal



Living with Birds: The Memoir of One of India's Greatest Ornithologists

by: Asad Rahmani
Published by: Juggernaut, 2024
Size: 20 x 13 cm
Pages: 350
Price: ₹ 599/-
Paperback

Reviewed by: **Kishor Rithe**

I was surprised when I first saw a flyer for the book release event of Dr Asad Rahmani's memoir, scheduled to be held in New Delhi. Just a month earlier, Dr Rahmani had visited Hornbill House and requested some files to review certain documents. He mentioned that he wanted to go through them as part of his research for writing his autobiography. However, I had no idea that his book would be released so soon.

Naturally, I was eager to read what he had written. As the youngest Executive Member (now known as the Governing Council) of BNHS, I had the opportunity to witness his tenure as Director of BNHS. Later, as Chairman of the Conservation Committee (previously a sub-committee), I observed his responses to various conservation issues.

In *The Early Years*, Dr Rahmani writes about his childhood, his parents, and how he developed his own thoughts and ideology. His passion for wildlife was nurtured at home, where he kept pets, and his access to libraries in his hometown made him an avid reader – something that later proved invaluable in his professional life.

Eager to read about his association with BNHS, I quickly delved into the chapters: *Joining BNHS*, *My BNHS Colleagues*, *Colleagues in Conservation*, and finally, *Moving on From BNHS*.

It was fascinating to learn how BNHS shaped him as a researcher in *Joining BNHS*. His personal accounts of BNHS staff in *My BNHS Colleagues*, the contributions of field assistants in *Field Assistants*, and the key figures in conservation in *Colleagues in Conservation* were all engaging. However, I particularly enjoyed reading about the field assistants, as it highlights their crucial role in conservation. The chapter *The Legendary Ali Hussain* further reinforces their importance.

In the final chapter, *Moving on from BNHS*, Dr Rahmani writes that a year before his retirement on July 31, 2015 (though he mentions July 30, 2015), he began delegating responsibilities to younger members. I wonder whether that transition was sufficient. Despite publishing 180 research papers, numerous short notes, and over 350 articles during his 14-year tenure at BNHS, he still admits that he could not write many research papers on time. This chapter provided valuable lessons on what to do – and what not to do – as a Director. I hope future BNHS Directors will find it equally insightful.

Reading *At Home in AMU* made me want to visit the wetlands around Aligarh. His deep fondness for the place is evident, and he revisits it in the chapter *AMU Revisited*. Readers will undoubtedly enjoy this section.

Dr Rahmani is well-known for his work on grassland species like the great indian bustard (GIB) and the lesser florican. *The Bird that Changed my Life* details how he became involved with GIB conservation in Solapur, Maharashtra, while *The Florican Project* describes his work on the lesser

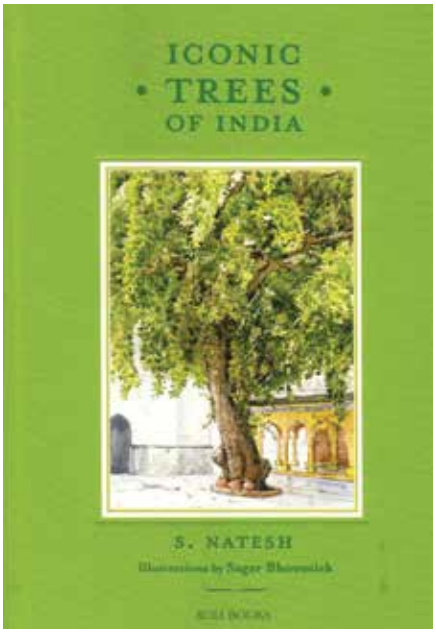
florican across grasslands in Madhya Pradesh and Uttar Pradesh. These chapters highlight his relentless efforts to protect these species, a cause that remains critically important as bustards continue to face the threat of extinction in India.

In *The Forest Job*, he reflects on some of the finest forest officers he met, while *The 'Babu' as Conservationist* highlights the contributions of IAS officers, including Mr Pravinsingh Pardeshi, the current President of BNHS.

The book is impossible to put down, especially the chapters: *Early Conservation Strugglers*, *Changes Come Calling*, *Desert Tales*, *The BirdLife Partnership*, *The Spirit of BNHS*, *125 Years and Counting*, and *Across International Lines*.

Additionally, chapters like *The Power of Partnership*, *The Vulture Crisis*, *Field Visits*, and *More Feathered Friends* will undoubtedly inspire research scholars to follow in his footsteps and strive to become some of India's greatest ornithologists.

Dr Rahmani's unique writing style and sense of humour shine through in many parts of the book. However, I would have loved to read more about some of the conservation battles that BNHS fought based on his research.



Iconic Trees of India
by S. Natesh
Published by: Roli Books, 2024
Size: 23.5 x 16 cm
Pages: 256
Price: Not mentioned
Hardbound

Reviewed by: **Ashok Kothari**

The author, S. Natesh, travelled across India for nearly ten years, meticulously studying seventy-five of the country's most remarkable trees and the history and stories associated with them. Instead of focusing on detailed botanical descriptions, he brings these trees to life by narrating their origins, cultural significance, and historical importance.

He describes the majestic Chinar trees of Kashmir and how Mughal emperors were captivated by their beauty. The oldest Chinar tree in Kashmir, located in the Badgam district, is approximately 650 years old. In the Yarikha forest zone of Kulgam district, Jammu and Kashmir, stands India's only Giant Sequoia tree.

The ancient Khirni tree *Manilkara hexandra*, associated with Lord Adinath, the first Jain Tirthankara, is found near the famous marble temple of Ranakpur, Rajasthan. Many of us recall seeing the sacred Mulberry tree near Shankaracharya's ashram in Joshimath during the 1995 BNHS camp at the Valley of Flowers. Under this giant tree, Adi Shankaracharya is said to have meditated. According to the author, it is nearly 1,200 years old.

The old Pipal tree near the police station in Sleemanabad, Madhya Pradesh, is infamous for its dark history. During colonial times, thugs made travel perilous in many parts of India. From the branches of this tree, hundreds of thugs were hanged by Colonel William Henry Sleeman.

The ancient Baobab tree of Jhunsi, near Prayagraj, is nearly 800 years old, as is another Baobab tree in Kinbor village, Uttar Pradesh. These are the two oldest Baobab trees outside Africa.

The legendary Dussehri Mango tree in Dussehri village, located in Malihabad's mango belt in Uttar Pradesh, is around 200 years old and is considered the mother tree of this variety. The author also describes a 100-year-old Dussehri tree at Malihabad's Abdulla Nursery, known for having the highest number of grafts.

The book does not overlook the Ramp's Fig tree at the Cellular Jail in Port Blair, which closely resembles a Pipal tree. This tree silently witnessed the inhumane treatment of numerous freedom fighters deported to the dreaded Kalapani. The author recounts how, when this tree was uprooted by a cyclonic storm, it was carefully nurtured back to life.

Another remarkable tree is Bareilly's Babian tree of martyrdom, from whose branches 257 freedom fighters were hanged after the Revolt of 1857. The book also describes the Great Banyan Tree and the Double Coconut Palm, both major attractions at Acharya Jagadish Chandra Bose Botanical Garden in Shibpur, Howrah, Kolkata.

S. Natesh further recounts the history of two Mahogany trees planted by the explorer David Livingstone when he arrived in Mumbai in his steamer Nyassa in 1865 after discovering the source of the Nile. As a guest of Governor Sir Bartle Frere, he stayed in Mumbai for a month. These trees can still be found in the Kala Ghoda area near the Hornbill House.

Other notable trees featured in the book include the two Padouk trees of Matunga in Mumbai, Kabir Vad near Bharuch, Peshwa Bajirao's Mango tree in Pune, the ancient Neem tree of Vadnagar in Gujarat, and the White Silk Cotton tree at Lalbagh, Bagalur. Each chapter unfolds a fascinating story about these natural monuments.

The book is beautifully illustrated by Sagar Bhowmick.

ICONIC TREES OF INDIA is a captivating read that sheds light on our country's green heritage. Many ancient trees have stood the test of time for centuries, and this book will inspire readers to explore the green monuments scattered across India.

ABOUT THE COVER

Allobaccha sp.

Hoverflies (family Syrphidae), also called flower flies or syrphids, are often seen hovering or feeding on flowers. About 6,000 species exist worldwide, with 557 species reported from India. They are found globally, except in Antarctica. Males hover to display territorial behaviour and attract mates, while females hover to locate egg-laying sites. Adults primarily feed on nectar and pollen; larvae have diverse diets – some feed on decaying organic matter, others prey on pests like aphids.

Allobaccha is a genus within this family, with nine species reported from India. These hoverflies often have elongated, wasp-like abdomens Both adult and larval stages are predators of soft-bodied Hemiptera, making them ecologically important for pest control. ■

We are grateful to

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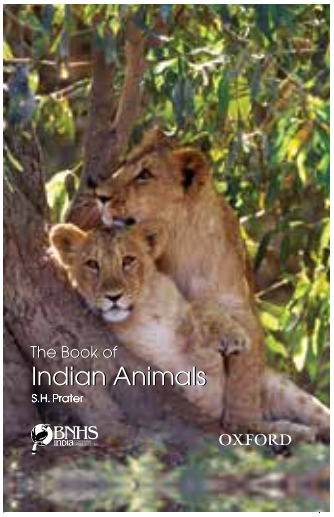
Call to Contribute: BNHS 150 Years
"The Book of Indian Animals" – *Systema naturae*



The first edition of THE BOOK OF INDIAN ANIMALS, written by S.H. Prater, was published by the Bombay Natural History Society (BNHS) and described the more common or conspicuous terrestrial mammals of India. The second edition was with financial support from the Prince of Wales Museum. S.H. Prater had fully revised the text for the second edition that included marine mammals, written by Dr E.G. Silas and Mr J.C. Daniel.

The second edition also featured a set of 28 colour plates by Mr Paul Barruel, depicting 141 species of mammals, replacing the earlier coloured illustrations. Additional monochrome plates were added with the generosity of the owners of the copyright.

S.H. Prater had hoped that THE BOOK OF INDIAN ANIMALS would draw the attention of people in India to its magnificent natural heritage and inspire efforts to for preserving this legacy to their own advantage.

In our continuation to extend the "call to contribute" to the members of the BNHS to revise and update these landmark books for the Society's sesquicentennial (150th anniversary) under the *Systema naturae* series, we are also inviting contributions for a revised edition of THE BOOK OF INDIAN ANIMALS.

We welcome BNHS members – including naturalists, field enthusiasts, and mammal researchers to contribute to the revision of the text of S.H. Prater's timeless book.

To facilitate this, an example of a species description from THE BOOK OF INDIAN ANIMALS is included on this page. This extract serves as a reference for the sections where BNHS members can contribute by submitting revisions, additional notes, new information, and photographs. A panel of editors will review, validate, and approve submissions for inclusion in the revised edition. All contributors will be acknowledged in the final publication. BNHS members are encouraged to submit their contributions based on the 2014 reprint edition for THE BOOK OF INDIAN ANIMALS at systema150@bnhs.org.

The species listed in the last reprint will serve as a checklist for submissions. Members may also propose the inclusion of additional species based on factors such as conservation status, distribution, endemism, endangered status, and changes in local abundance. The editorial panel will evaluate these recommendations and may include species descriptions with accompanying photographs if a full-colour plate with multiple species is not justified.

THE DESERT CAT
Felis libyca Forster
Plate 17, p. 97
[RACES IN INDIA: *ornata* Gray]

(1) **Local Names.** Cutch *jhang meno.*

Size. Head and body, two feet (60 cm); tail, about 1 ft. (30 cm); weight 6–8 lb. (3–4 kg).

Distinctive Characters. In the Indian desert region and in the dry zone of central India, where both jungle cats and Desert Cats are found, the Desert Cat is easily distinguished by its spots. Not much larger than a domestic cat, the Indian Desert Cat has pale yellowish fur, more or less infused with grey and marked with numerous black spots. The terminal half of its tail is ringed with black. It has two horizontal stripes on its cheeks, numerous dark cross lines on the outside of the limbs, and the usual to distinct black bars on the inner side of each forearm. The chin, throat, and breast are white and unspotted. The ears are coloured like the back, with a few black hairs at the tips.

(2) **Distribution.** The deserts of north-western India extending into the drier parts of central India and to near Poona in the Deccan. Westward the range extends through desert lands from Sind to northern Africa. Northwards into the steppes of central Asia.

(3) **Habits.** Very little is known about the habits of this Cat, except that it lives in deserts and scrub jungle, where its prey must consist mainly of desert gerbilles and other small rodents and birds. One was shot while feeding on the carcase of a sheep. Breeding habits, unknown. (4)

BNHS members are invited to contribute to the following aspects: (1) **Local Names** – if any new names validated by regional use or referenced in other publications; (2) **Distribution** – Updates on a species' local or regional residency status, including new movement records (3) **Habits** – New findings on behaviour such as roosting, hibernation (in some mammals), and nesting habits (especially in lesser mammals like rodents) and choice of their niche locations; and (4) **Feeding Behaviour** – if there are specific records.

Please note – Observations related to nesting, hibernation, breeding and nesting habitat notes will only be accepted with adequate assurance that the contributor has ensured proper care in approach to the niche or only used appropriate long range technology. Submissions should comply with necessary permissions when conducted in or near Protected Areas. Photographs taken during safari visits to Protected Areas should be avoided unless they provide particularly significant new information.

We invite BNHS members to be part of this ambitious initiative – one that will shape the revised edition of THE BOOK OF INDIAN ANIMALS by S.H. Prater.

– Dr Bharat Bhushan,
Hon. Secretary, BNHS

FISHING CAT – ENDANGERED SHADOWS OF VANISHING WETLANDS IN INDIA

P. Sathiyaselvam

P. Sathiyaselvam, Deputy Director of the BNHS, is trained in satellite tracking, and has been involved in Bird Migration studies since 2002.

The elusive fishing cat *Prionailurus viverrinus*, a species intrinsically linked to Asia's wetlands, faces an increasingly precarious future. Once distributed across a patchwork of territories from Pakistan to Java, its range is now fragmented and shrinking. In India, this endangered feline persists primarily in the eastern regions, including West Bengal, Assam, Odisha, and parts of Andhra Pradesh, as well as along the Himalayan foothills in the Terai. While occasional sightings occur in protected areas such as Keoladeo National Park and Ranthambhore Tiger Reserve, these have become increasingly rare, underscoring the species' decline in the western regions.

A combination of human activities has driven this alarming trend. The relentless destruction of wetland and floodplain habitats – fuelled by unchecked development, unsustainable aquaculture, and encroaching agriculture – continues to erode the fishing cat's natural domain. Illegal hunting, compounded by rural and urban land policies that prioritize human expansion, further exacerbates the situation. Additionally, the proliferation of brick industries near these delicate ecosystems contributes to environmental degradation. If immediate and intensive habitat protection measures are not implemented, a further decline in fishing cat populations is anticipated in the near future.

MANNEPURI SRIKANTH

D. MAHESH BABU

In this context, the Coringa Wildlife Sanctuary, located along the eastern coastline of India in Andhra Pradesh, plays a critical role in conservation efforts. With its unique mangrove ecosystem and intricate network of waterways, the sanctuary offers a potential stronghold for the fishing cat. However, like other habitats, it remains vulnerable to the same threats that imperil the species elsewhere. A deeper understanding of the fishing cat's ecology – both within Coringa and across its range – is urgently needed. Despite its endangered status, significant knowledge gaps persist regarding its foraging and breeding biology, social behaviour, and current distribution, all of which hinder effective conservation strategies. Addressing these gaps is essential for securing the species' future, and with dedicated research and protection efforts, Coringa Wildlife Sanctuary could emerge as a key refuge for the fishing cat in India.

Spanning 235.7 square kilometres at the confluence of the Godavari River and the Bay of Bengal in the East Godavari District, Coringa Wildlife Sanctuary is part of the Godavari Estuary and features extensive mangrove cover. The region experiences temperatures ranging from 17°C to 40°C and receives over 1,000 millimetres of annual rainfall. The sanctuary's northern portion includes approximately 100 square kilometres of Kakinada Bay backwaters.

Initial studies on the fishing cat population within the Coringa Wildlife Sanctuary involved a comprehensive survey encompassing 134 grids across the sanctuary's mangrove expanse. This survey utilized pugmark and scat analysis, direct sightings with GPS coordinates, and behavioural observations to map the fishing cat's distribution and movements. Additionally, between June 2014 and July 2015, 60 camera traps, deployed in pairs for 15-day periods synchronized with spring and neap tides, were used to capture photographic evidence. Individual fishing cats were identified based on their unique pelage patterns, and the initial study estimated a population of 95 to 100 individuals within the sanctuary.

Recognizing the importance of understanding the broader population dynamics, the study recommended extending surveys to adjacent mangrove areas within the Godavari delta. Activity patterns were correlated with tidal data obtained from online sources to understand the fishing cat's behaviour to tidal fluctuations. Subsequently, in 2018, the Andhra Pradesh Forest Department conducted follow-up surveys, employing similar methodologies, and recorded 115 individual fishing cats within the Coringa Wildlife Sanctuary and its adjoining mangrove areas.

More recently, in 2023–2024, the Wildlife Institute of India (WII) conducted further investigations, resulting in an estimated population of 85–90 individual fishing cats. These varying estimates highlight the dynamic nature of wildlife populations and underscore the importance of continuous monitoring. The fluctuations observed may be attributed to a variety of factors, including habitat changes, prey availability, and natural population cycles. Further research is necessary to fully understand the factors influencing fishing cat population dynamics within the Godavari mangroves, and continuous monitoring is crucial for effective conservation strategies.

MANNEPURI SRIKANTH

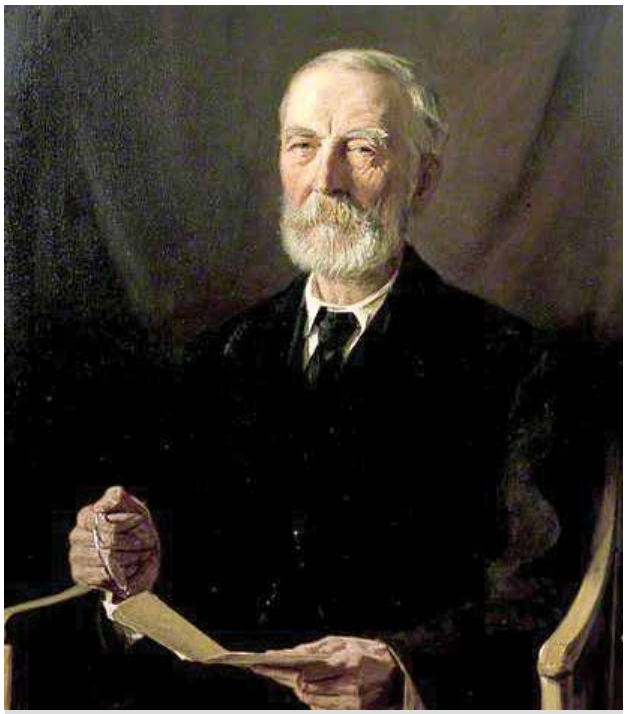
Interviews with residents from the villages surrounding Coringa Wildlife Sanctuary highlighted several human-fishing cat conflicts. Fishermen reported annual losses of 10 to 20 kilograms of fish to fishing cats, resulting in monetary losses for the fishermen. Fear-driven attacks on fishing cats by crab collectors were also reported, stemming from a belief that the animals target human eyes. Aqua farmers suffered losses from fishing cats preying on farmed fish and prawns, with annual financial losses. Fishing cats explored gaps in aquaculture pump houses and were sometimes killed by electric fences or direct attacks. Villagers reported fishing cats entering their communities, particularly during summer, to prey on poultry and lambs, leading to retaliatory killings through snares or beatings. Expanding industrial development and aquaculture outside the sanctuary has further reduced fishing cat habitat, forcing them into human-dominated areas where they face heightened risks.

Raising awareness is crucial to the effective protection of fishing cats in Coringa Wildlife Sanctuary. Surveys revealed significant knowledge gaps among local communities, with most residents unaware of the species' protected status. They expressed a willingness to support conservation efforts. Awareness campaigns and constructive dialogues between wildlife managers and local stakeholders are essential to building trust and facilitating information exchange. Additionally, radio telemetry is recommended to enhance understanding of the fishing cat's behaviour and ecology. Given their nocturnal and elusive nature, radio-collaring at least five individuals (two males and three females) would provide valuable insights into habitat use, home range, and seasonal movements, ultimately aiding conservation planning within the sanctuary and surrounding mangrove areas.

Coringa Wildlife Sanctuary harbours a significant fishing cat population along India's east coast, warranting its designation as a dedicated *Coringa Fishing Cat Sanctuary* under the Ministry of Environment, Forest, and Climate Change's species recovery programme. Subsequently, it was discussed in the high-level forum. Experts suggested that declaring it as a fishing cat sanctuary may lead to a life threat to the animal as it is hunted elsewhere by the people for table purpose. A protected area and conservation activities are proposed to safeguard the mangroves in the region. It is worth prioritizing the area as a specialized fishing cat conservation reserve to give pride to the secretive species. Areas dominated by *Suaeda maritima*, crucial for kitten rearing, must be preserved and excluded from mangrove expansion initiatives. Furthermore, restoration efforts should focus on clearing invasive *Eichhornia* species from creeks and canals to mitigate siltation and maintain a healthy habitat for the fishing cat. ■

Donald James Mackay

President of BNHS 1886–1890



Builders and Guardians of Modern India: A Tribute to the Former Presidents of BNHS

We are keen to introduce a new series of articles exploring the lives and achievements of our former presidents. These individuals, who served as the guardians of our society, were not only passionate about nature and conservation but also played a significant role in shaping modern India.

Over the coming months, we will feature articles on some of the most remarkable individuals who have led our society, beginning with Donald James Mackay, the Honourable Governor of Bombay, who served as the Society's first President from 1886 to 1890. Many Mumbaikars may be familiar with the Reay Road suburban railway station, but few know that it was named after Donald James Mackay, who was also the 11th Lord Reay and the first Baron Reay.

Through this series, we aim to highlight the contributions of our former presidents, who, beyond their official roles, were instrumental in shaping modern India. Their profiles will not only offer a glimpse into the nation's past but also inspire us to carry forward their legacy of conservation, sustainability, and nation-building.

We invite you to join us on this journey through history of the BNHS in its formative years.

Donald James Mackay, 1st Baron Reay and 11th Lord Reay (December 22, 1839 – August 01, 1921) was the first President of the Bombay Natural History Society (BNHS) from 1886 to 1890, while in office as the Governor of Bombay. As many of you know, BNHS was founded in 1883 by a group of eight individuals with the objective of disseminating biological knowledge.

Born as Donald Jacob, Baron Mackay in The Hague, he uniquely held the Dutch titles of Lord of Ophemert and Zennewijnen due to his birthplace and inheritance. His father, Aeneas Mackay, the 10th Lord Reay, was also a Dutch Member of Parliament.

Lord Reay succeeded his father in 1876 and was naturalized as a British subject in 1877. Prime Minister William Gladstone appointed him Governor of Bombay in 1885, a position he held until 1890. As Governor, he personally oversaw the political, military, ecclesiastical, and public works departments, and in his final year at office, took charge of public instruction, encouraging the development of teaching across various disciplines. He also paid much attention to the development of the railway system.

In recognition of his service, he was appointed a Knight Grand Commander of the Most Eminent Order of the Indian Empire (GCIE) in 1887 and a Knight Grand Commander of the Most Exalted Order of the Star of India (GCSI) in 1890. Upon returning to Britain, he served as Under-Secretary of State for India from 1894 to 1895.

Abridged from various public sources

– Dr Bharat Bhushan
Honorary Secretary, BNHS

Laughingthrushes of Indian Himalaya

Text and Photographs: **Rajat Bhargava**

My fascination with Indian laughingthrushes dates back more than four decades. Interestingly, my earliest encounters with these birds were not in the wild but in traditional bamboo cages in the backyard of my home in Meerut. Until 1990–91, the Government of India 'officially' allowed the domestic trade and export of live birds. My next-door neighbour, Ramautaur *chacha*, a seasoned exporter of hill birds, had extensive expertise in shipping various native species worldwide. His network of licensed Baheliya bird trappers from Haldwani, Pilibhit, Kotdwar, and Bareilly regularly brought their bi-weekly catch of Himalayan birds – primarily softbills – captured during winter in the Garhwal and Kumaon hills for sale to him.

One of my favourite pastimes was closely observing the live bird consignments that arrived from different Indian states at our backyard compound, known as *Jafar Khan-ka-ahata* (= Jafar Khan's compound). I continued these observations for years until I moved to Aligarh Muslim University in 1991 to pursue postgraduate studies in Wildlife Science. As a young enthusiast, I was particularly captivated by the loud, laughter-like calls of the laughingthrushes, which sounded remarkably human. Their mischievous behaviour, both in captivity and now in the Himalayan wilderness, endeared them to me among the many species historically sent to international aviculturists and zoos.

In many South Asian countries, such as Indonesia, laughingthrushes are still valued as songbird companions, with many households keeping them as pets. In India, however, the tradition of keeping native wild birds has nearly vanished, with the exception of a few Indian parakeets, which some people still keep as talking birds – despite this practice being illegal.

Laughingthrushes were historically classified under the genus Garrulax based on morphological traits. However, recent taxonomic studies using DNA-based phylogenetic analysis have led to a well-supported reclassification, redistributing various species into more appropriate genera. The name *Garrulax* comes from the Latin *garrire*, meaning "to chatter", or babble as most laughingthrushes at the first sign of danger characteristically break into a concert of loud hissing, chattering and squealing. The English name 'laughing' refers to the fact that when alarmed, laughingthrushes call in a communal chorus of laughter-like noises, which gives the genus *Garrulux* its vernacular name.

Laughingthrushes are gregarious, noisy, medium-sized birds with robust bills, strong legs and feet, and a conspicuously long, rounded tail. They are not strong fliers, typically making short, clumsy flights. On the ground, they are often seen rummaging through leaf litter, using their distinctive springy hops to search for insects, flies, beetles, snails, and even leeches. Many species also feed on seeds, fruits, and nectar.

About 30 resident species of laughingthrushes inhabit the Indian subcontinent, with most distributed along the Himalaya and exhibiting seasonal movements during winter. However, five species – the Palani laughingthrush *Montecincla fairbanki*, Nilgiri laughingthrush *Montecincla cachinnans*, Ashambu laughingthrush *Montecincla meridionalis*, Banasura laughingthrush *Montecincla jerdoni* and Wayanad laughingthrush *Pterorhinus delesserti* – are endemic to the Western Ghats and are globally threatened.

My career in ornithology has provided me with unforgettable opportunities to observe and photograph laughingthrushes in their natural habitat, rather than merely experiencing them as avicultural subjects during childhood. While a few known locations in India offer reliable sightings, most laughingthrushes are elusive, preferring dense forest cover. A BNHS project in 2017–18 allowed me to photograph several species around the Barsey Rhododendron Sanctuary in Sikkim. More recently, during my Diwali holidays in 2023, I visited Pangot and Sattal in Uttarakhand, where I captured images of additional species. Combining my field observations with avicultural anecdotes, I hope to showcase my photographs in this article. A glimpse into some laughingthrush species:

White-crested Laughingthrush (*Garrulax leucolophus,* 28 cm): **A strikingly large olive-brown laughingthrush with a white-crested head, throat, and breast, complemented by a distinct black eye-mask. It inhabits Himalayan foothills up to 1,800 m, favouring wooded valleys near cultivated areas. Among the most popular species in the Garrulax genus, its raucous, cackling outbursts have earned it the aviculture nickname 'Guppo'. Dr Sálim Ali described their synchronized wing-fluttering displays as resembling an "orchestra in action". The local Pahadi call the bird as 'Rouliya'.**

White-throated Laughingthrush
(*Pterorhinus albogularis*, 28 cm):
An extremely gregarious species, often forming flocks of 30 or more birds in winter. It thrives in oak, fir, and deodar forests at elevations of 450 to 3,400 meters, foraging in damp undergrowth and mossy logs. It is easily recognized by its white throat patch bordered by an olive-brown band and having rufescent-buff lower underparts and glaring broad white tail tips. The white throat patch earns the bird its vernacular name 'Chand-tara'.

Striated Laughingthrush
(*Grammatoptila striata*, 29 cm):
A large, umber-brown bird with white streaks and a mop-like crest, found at 600–3,000 m elevation. More arboreal than most laughingthrushes, it feeds in high canopies and lower branches. Sálim Ali described its loud, discordant calls as like a hen after laying an egg or a harsh chorus of chattering laughter. North Indian bird trappers called it 'Nauratan' – meaning nine gems – as it was one of nine laughingthrush species commonly traded before 1990 during the Indian bird trade era.

Red-headed Laughingthrush
(*Trochalopteron erythrocephalum*, 28 cm):
A medium-sized olive-brown bird with a rufous-chestnut crown, black throat, and intricate scale-like markings. The trappers call it 'Reshmi Guldhar' because of its velvety plumage. A shy and secretive species, it is often overlooked despite its distinctive chuckling calls.

Streaked Laughingthrush
(*Trochalopteron lineatum*, 20 cm):
A relatively small, uncrested species with finely streaked brown and grey plumage with dull rufous ear-coverts along with a greyish-white terminal band on its rounded tail. The similar-looking Striated Laughingthrush is much larger and has a conspicuous mop-like crest. It is often seen in pairs near human habitations, creeping along village boundary walls and producing flute-like notes. The hill trappers refer to this species as 'Choti Pengri'.

Black-faced Laughingthrush
(*Trochalopteron affine*, 25 cm):
A high-altitude species with a dark brown body, blackish-brown head, and striking white sub-moustachial patch. It inhabits evergreen and coniferous forests above the timberline and produces a loud, shrill song.

Spotted Laughingthrush
(*Ianthocincla ocellata*, 32 cm):
One of the largest laughingthrushes, distinguished by its dark-capped head and intricate scale patterns. It is often found in small family groups at 2,135–3,660 m, frequently associating with Black-faced Laughingthrushes. Bird trappers from the north call it 'Bada Guldhar'.

Scaly Laughingthrush
(*Trochalopteron subunicolor*, 23 cm):
A plain olive-brown bird with heavy dark scaling and a yellowish wing panel, typically found in broadleaf forests at elevations of 1,500–3,960 m.

Rufous-chinned Laughingthrush
(*Ianthocincla rufogularis*, 22 cm):
A medium-sized, secretive bird with a dark face, heavily scaled underparts, and a diagnostic rufous chin. It is less social and more reclusive than other species. Traded by the name 'Bari Pengri', this species was never much in demand as it was not so brightly coloured or confidently vocal.

Having explored and documented several laughingthrush species, my goal is to seek out those found in India's northeastern states and the Western Ghats, particularly the endemic and threatened ones. Laughingthrushes are so engaging that they can inspire even non-birders to take up birdwatching. I am eager to learn more about these fascinating birds, the threats they face from deforestation and human expansion, and the conservation efforts dedicated to their protection. Organizations like SACON and BNHS have conducted valuable research in these areas. For anyone interested in spotting laughingthrushes, I highly recommend visiting Pangot and Sattal in Uttarakhand, where several species can be seen year-round. BNHS frequently organizes field trips to these locations, providing excellent opportunities for bird enthusiasts. ■

Rajat Bhargava is Senior Scientist (Ornithology) at BNHS. His interests including documenting bird and human aspects in India, along with conservation work on Finn's Weaver and Green Avadavat.

Beyond Corbett: A Birding Odyssey in the Himalayan Foothills

Text and Photographs: **Ram Gopalakrishnan**

Pine forest

We arrived on a crisp November morning at Ramnagar Station, the gateway to Jim Corbett National Park. But instead of heading towards the famed tiger and birding paradise, we drove north, away from its main entrances. It felt counterintuitive – why would we bypass one of India's richest wildlife sanctuaries? What could possibly be better than Corbett? I couldn't shake my doubts. We soon found out.

Frozen in excitement, we watched as a magnificent koklass pheasant, with its iridescent green head and elegant crest, strode confidently across the road. His more reserved mate, blending into the undergrowth, scurried away from our prying eyes. The day was filled with delightful sightings – rock and white-capped buntings, an impressive scaly-bellied woodpecker, and the elusive upland pipit. But the true highlight came that evening – a rare encounter with a mountain scops owl. Its distinctive two-pitched call betrayed its presence, and under the beam of our spotlight, it remained unfazed, offering us a once-in-a-lifetime view.

We were in Manila (pronounced Maa-nila), a birding hotspot in Almora district, northeast of Corbett. At 1,850 m, the Manila provided a perfect base for exploring high-altitude Himalayan species, particularly pheasants.

The landscape was stunning. Majestic views of Mount Trishul and Nanda Devi framed our birding adventures. Noisy white-throated laughingthrushes jostled with grey treepies and black-headed jays. A flowering cherry blossom tree attracted rufous sibias and a brown-fronted woodpecker. The bold male kalij pheasant, far less skittish than its koklass cousin, herded his five hens away from us. Meanwhile, the vibrant rufous-bellied woodpecker – whose head resembled a ripe tomato – became the subject of much amusement.

One of the biggest surprises was spotting the spot-winged grosbeak, an altitudinal migrant tracked down by our skilled local guide, Vivek Rawat. As it feasted on berries, its oversized beak seemed almost comically disproportionate. A chestnut thrush – a personal lifer – added to the excitement.

The elusive cheer pheasant, a globally threatened species, proved to be a far greater challenge. Their bright red eye patches and long tails make them striking, but their secretive nature makes them incredibly hard to spot. For hours, we combed the hillsides, listening intently for their distinctive squawking calls. Just as we were about to concede defeat, we struck gold – five cheer pheasants in a single frame! A moment of sheer magic. That evening, our ginger-flavored tea tasted even sweeter.

As we explored further, we noticed an interesting ecological contrast. Chir pine (*Pinus roxburghii*) dominates vast stretches of Uttarakhand, covering up to 16% of the state's forests. However, these trees create what some call a 'green desert' – their fallen needles acidify the soil, preventing other vegetation from thriving, and their shallow roots fail to retain water, exacerbating droughts. We observed significantly fewer bird species in pine forests compared to the more diverse oak forests. Introduced for commercial use during British rule, pines have since displaced native oaks, raising the question: Should these forests be restored with a mix of native species?

Before leaving Manila, we visited the sacred Manila Devi temple, offering thanks – and a few whispered prayers for more bird sightings. As we descended in altitude, the crisp mountain air gave way to the warmth of the plains. Pine and oak forests transitioned into towering sal trees, signaling our return to lower elevations.

Koklass Pheasant

Brown-fronted Woodpecker

Immaculate Cupwing

At a roadside stop, a solitary cinereous vulture circled overhead, accompanied by Himalayan griffons. A sparkling rivulet revealed a green metalwing damselfly, its iridescent wings catching the light. A brief detour to the Kosi River proved incredibly rewarding – a vocal immaculate cupwing (formerly Nepal wren babbler) made its presence known with a sharp metallic call. Nearby, crested kingfishers – looking like pied kingfishers on steroids – perched regally on the riverbanks.

No visit to Kaladhungi is complete without paying homage to Jim Corbett. His former home, now a museum, preserves the legacy of a man who shaped conservation efforts for generations. For me, this stop was deeply personal – my late father, a devoted Corbett enthusiast, had visited the museum in 2007 with his brothers. Their love for nature and conservation, passed down from Corbett's writings, had profoundly influenced me. Standing there, I felt an unspoken connection across time.

On our final birding stop, the Baur River meandered through dense sal forests, a meeting point of Himalayan and subcontinental habitats. Grey and brown-capped pygmy woodpeckers, lineated and brown-headed barbets, and rufous and grey treepies flitted through the trees. A raucous group of white-crested laughingthrushes lived up to their name with their manic cackling.

One of the trip's most unexpected highlights was a "drab little prinia". The grey-crowned prinia, found in India only in small pockets of Uttarakhand, is notoriously difficult to spot outside the breeding season. Yet, after much patience, we secured a fleeting glimpse – enough for a celebratory record shot.

Our last stop, Baur Reservoir, was a revelation. Created by the Haripura Dam, this ecosystem of open fields, marshes, and reed beds multiplied our bird count exponentially. Bengal bushlarks, rosy pipits, striated babblers, and zitting cisticolas dotted the fields. The reeds concealed paddyfield warblers, yellow-bellied prinias, clamorous reed warblers, and the striking chestnut-capped babbler.

Scanning the reservoir, we found a variety of pochards – common, ferruginous, and tufted – bobbing on the water. We had set out in search of the endangered finn's weaver but instead found something equally rare: the West Himalayan bush warbler, a nondescript warbler with a distinctive call, wintering in the reedbeds of the Western Himalaya. We left convinced that Baur Reservoir deserved recognition as an Important Bird Area (IBA).

As we packed up, I reflected on the journey. Corbett National Park remains an unrivaled gem, but stepping beyond its borders had revealed a world of hidden treasures. So, the next time you plan a visit to Corbett, consider a diversion – you just might find something even more extraordinary. ■

Ram Gopalakrishnan is a physician practising in Chennai. He enjoys birding in remote locations and hopes to stimulate love for nature and its conservation through his writings.

The Tale of a Black-naped Monarch Nest

Text: **Aniket Pawar and Sachin Ranade**
Photographs: **Aniket Pawar**

Black-naped Monarch male

The tree selected by the Black-naped Monarch for nesting

Rani, a small village in Assam's Kamrup district, sits right on the state border with Meghalaya. Surrounded by lush woodlands from the Garbhanga Wildlife Sanctuary and Jorasal Reserve Forests, its landscape is dotted with sprawling paddy fields and cozy houses wrapped in areca nut orchards. The people here live simply, harmonizing with nature – a bond that's reflected in their vibrant festivals and traditions.

One morning, we were out buying bamboo for the Vulture Conservation Breeding Centre when we stumbled upon a traditional house hidden in a green orchard. This house was not just picturesque – it was eco-friendly too, built entirely of bamboo and mud, with tin roofs over some rooms and grass thatching over others. The home belonged to a Rabha family, a local indigenous tribe.

As we approached the house, we were greeted warmly by an elderly Rabha woman, her daughter, and her granddaughter. While our teammates selected the bamboo, the family offered us red tea – a local specialty. Curious about our work, the old woman asked, "What do you do?" "Vulture conservation", we replied, bracing for a puzzled reaction. Instead, her face lit up with a knowing smile. "We care for birds

too!" she exclaimed, pointing to a Jambura tree *Citrus maxima* in the front yard.

Intrigued, we listened as she described a beautiful bird that nested in the tree every year. As the tree was hardly twenty feet away from where we were sitting we were expecting to see a familiar bulbul or munia nest. But what we found left us speechless – a perfect cup-shaped nest perched just twelve feet above the ground. And there it was: a female black-naped monarch *Hypothymis azurea*, incubating her eggs.

As we watched in awe, the male monarch flew in, and the female gracefully flew off, their movements so synchronized it felt like a dance. These little black-and-blue marvels had created a masterpiece, and we were lucky enough to witness it.

During his visits, Aniket observed not just the science but also the intimate details of the monarchs' lives- the gentle care of eggs taken by both parents, change of duty in perfect coordination, feeding the youngones and many more! On May 23rd, a dramatic twist unfolded. The peaceful yard suddenly echoed with frantic alarm calls from the monarchs and their 'support team' – a yellow-vented flowerpecker, a crimson sunbird, and even a hoary-bellied squirrel. All were mobbing an intruder: an ornate flying snake.

The snake slithered toward the Jambura tree, sending chills down our spines. But the monarch parents did not panic. They called their chicks to action. Encouraged by the parents, the fledglings wobbled and fluttered their way to a bamboo fence nearby. The mother tirelessly fed them, coaxing them to safety. After twenty nerve-wracking minutes, the chicks made it to a canopy far away, and the snake, unnerved by the commotion, retreated into the treetops.

This nail-biting escape made us appreciate the delicate balance of life for these small birds. Their

The Ornate Flying Snake – the visitor to the nest

strategy? A short nesting period and a quick launch into independence. Before you even get used to the sight of a baby bird, it is already gone, ready to tackle the wild.

And what a sight those fledglings were – bald, with barely-there feathers resembling a tiny 'towel' of remiges. Funny enough, they do not even wait to grow their signature crown or tails before leaving the nest. This reminded us of vultures, which we work with regularly. Unlike these tiny monarchs, vulture chicks grow a modest crown before they fledge, though adult vultures end up mostly bald. With the monarchs, it is the opposite – bald babies transform into regal adults with stunning crowns and vivid blue plumage. Nature, it seems, insists on a 'bald phase' somewhere along the line!

This unexpected adventure was a reminder of how nature thrives in balance and of the perseverance even the tiniest creatures need to survive. ■

Aniket Pawar, is a passionate biologist in the Vulture Conservation Programme. He is interested in satellite telemetry.

Sachin Ranade, Working on Vulture Conservation for 24 years. Sachin, Assistant Director BNHS, is interested in bird behaviour and their breeding biology.

Supreme Court to the Rescue of Sacred Groves

Kishor Rithe

In a landmark order on December 18, 2024, the Supreme Court of India directed the Ministry of Environment, Forest, and Climate Change (MoEF&CC) to formulate a comprehensive policy for the management of sacred groves across the country. The Court further mandated a nationwide survey to demarcate the boundaries of these groves, ensuring space for future ecological conservation. The judgement highlighted the urgent need to protect sacred groves from threats such as deforestation and degradation.

The case originated in the state of Rajasthan. While hearing the matter, the Supreme Court went a step further by emphasizing the recognition and protection of sacred groves – locally known as Orans in Rajasthan – as community reserves under the Wild Life (Protection) Act of 1972. The Court advocated empowering local communities to actively participate in the management of these groves, citing successful community-led initiatives like those in Piplantri village, Rajasthan. Additionally, it directed the Rajasthan government to map and classify all sacred groves in the state and recommended establishing a monitoring committee to oversee this critical process.

Sacred groves are biodiversity-rich sites of various sizes that have been preserved by communities globally for centuries due to their religious and cultural significance. These lesser-known biodiversity hotspots act as repositories for important plant species and provide

GURHARMINDER SINGH

Bir Sikhan Wala – A sacred grove protected by local communities in Punjab's Faridkot district

essential ecosystem services to surrounding areas. They also serve as ideal locations for eco-education, meditation, and biodiversity research, offering valuable opportunities for education and community engagement.

It is important to note that the Supreme Court had earlier passed an order on July 3, 2018, directing the Rajasthan government to include Orans in the list of 'Deemed Forests'. The Rajasthan State Forest Policy of 2010 had already recognized the importance of these groves. Following the 2018 Supreme Court order, Orans began receiving increased attention from various stakeholders.

I had the opportunity to attend a Wildlife Conservation Society (WCS) India seminar in Panjim, Goa in 2024, where the ORAN ATLAS OF ARAVALLIS OF RAJASTHAN, edited by Mr Aman Singh and Nitin Bathla, was officially released. Mr Aman Singh is a pioneer in the conservation of Orans in Rajasthan through his organisation, KRAPAVIS. His efforts in drawing the attention of policymakers and other stakeholders toward Oran conservation are highly commendable.

KRAPAVIS, an organisation dedicated to the protection and rejuvenation of traditional, cultural, and sacred groves in Rajasthan, compiled the atlas covering 100 Orans in the Aravalli hills. The atlas highlights diverse aspects of Orans, such as cultural practices, biodiversity and livestock, management and ownership structures, ecosystem services, and the livelihoods they support. It also includes GIS-based mapping of Orans, analysing land-use changes through NDVI (Normalized Difference Vegetation Index) data and field observations. Medicinal plants and pilgrimage sites associated with these groves were also documented, making the atlas a valuable tool for sustainable infrastructure planning.

KRAPAVIS's work in conserving and revitalising Orans could serve as a model for similar efforts elsewhere. Scaling up such initiatives is crucial to ensure the sustainability of these traditional community-conserved areas and to secure the well-being of the fragile rural communities that depend on them – especially in the context of a rapidly changing climate.

Orans in Rajasthan are community-conserved forests dedicated to locally worshipped gods, goddesses, deities, or saints. They are vital reservoirs of genetic biodiversity and serve the rural population by providing fuelwood, grazing grounds, water, and medicinal plants. Moreover, they exemplify how community-conserved areas can foster cultural harmony, sustain livelihoods, support climate resilience, and maintain healthy ecosystems. The value of these groves lies in their ability to meet the real, everyday needs of local communities.

However, in recent years, Orans in Rajasthan have suffered significant degradation due to neglect and shifting development priorities. Threats include energy infrastructure projects, encroachments influenced by profit-driven corporations, introduction of non-native flora, infestation by invasive species, overgrazing and the growing impacts of climate change. These pressures have led to the deterioration of Orans and the loss of critical cultural and biological heritage. Climate projections suggest that tropical drylands, such as those in Rajasthan, will face increasing aridity, reduced productivity, and water scarcity.

It is estimated that Rajasthan alone has over 25,000 Orans, covering approximately 600,000 hectares of land. Several native species, including kala khair *Acacia catechu*, gugal *Commiphora wightii*, and phalsa *Grewia tiliifolia*, which were once widespread across the Aravalli hills have now become rare and endangered due to habitat degradation.

Some Orans are among the finest grasslands in the region and support key wildlife species, including the critically endangered great Indian bustard (GIB) *Ardeotis nigriceps*, locally known as 'godawan'. These grasslands are increasingly threatened by land-use changes that lead to fragmentation, severely impacting bird species dependent on these habitats. The GIB and the lesser florican, both ground-nesting and critically endangered, are particularly vulnerable to habitat loss. Infrastructure expansion, urbanization, and the conversion of grasslands into agricultural land have increased these threats. Additional challenges include overgrazing, predation by domestic animals like free ranging dogs, and human activities such as using fire for land management.

Sacred Groves across India

Devrais in Maharashtra are also sacred groves, primarily found in the Western Ghats. Maharashtra is home to approximately 4,000 Devrais, with around 300 located in Pune district, and the remainder spread across Ratnagiri, Raigad, and Kolhapur districts. The people of Maharashtra have revered and protected these Devrais for generations. They serve as critical refuges for various plant and animal species.

NAYAN KHANOLKAR

Deg Rai Mata Oran is among the largest sacred groves in Rajasthan, located in the arid Thar Desert

In Punjab, sacred groves are locally known as 'Jhidi' – places where naturally occurring indigenous flora are preserved. Despite 84% of Punjab's land being under agriculture and only 5.97% under forest cover, sacred groves remain vital biodiversity pockets. A comprehensive study conducted by Gurharminder Singh, Vartika Singh, and Neelima Jerath assessed the floral biodiversity, cultural and religious significance, and conservation challenges of prominent sacred groves in the state. The researchers identified and studied nine major groves across eight districts, ranging in size from 1.5 to 135 hectares. 151 plant species from 54 families were recorded, including 63 tree species, 32 shrub species, and 44 herb species – indicative of the mature and self-sustaining nature of these ecosystems. One of the highlighted biodiversity hotspots of the study is the Charpat Bani Sacred Grove in Kataru Chak village, Pathankot district – that harbours 87 floral species spanning trees, shrubs, herbs, and grasses from 44 plant families and provides crucial habitat for a wide range of faunal species. The team also conducted extensive remote sensing analysis from 1991 to 2023, preparing Land Use Land Cover (LULC) and Normalized Difference Vegetation Index (NDVI) maps using Landsat data. Their findings revealed a predominance of dense vegetation cover within these groves, affirming the success of community-driven conservation efforts.

In the northeastern state of Meghalaya, sacred groves are found across the Khasi and Jaintia hills. Of the 79 sacred groves in the state, 50 are located in the Khasi Hills alone. Spread across approximately 9,000 hectares, their size ranges from as small as 0.01 hectares to as large as 1,200 hectares. In the Khasi Hills, sacred groves are called Khlaw Kyntang, Law Kyntang, or Law Lyngdoh, while in the Jaintia Hills, they are known as Khloo Blai.

However, sacred groves – such as Orans, Devrais, and Jhidis – are not limited to Rajasthan, Maharashtra, Punjab, or Meghalaya. Across India, there are approximately 13,000 known sacred groves in states like Kerala, West Bengal, Jharkhand, and Tamil Nadu. Notably, Rajasthan with over 25,000 Orans, suggests that the actual number of sacred groves in India may far exceed the current estimates. The recent order by the Hon'ble Supreme Court of India marks a pivotal moment in shaping the future of these ecologically and culturally significant landscapes. This decision aims to determine the fate of existing sacred groves and also seeks to identify and document

Biodiversity in Orans – Sacred groves support species like blackbuck, spiny-tailed lizards, vultures, and insects. A scorpion hunts a gecko in this rich habitat (bottom right)

previously unrecorded ones, potentially granting them legal recognition and protection.

Threats

Today, sacred groves in various states are under increasing threat from infrastructure projects such as roads and railways, which fragment habitats and destroy critical vegetation and nesting sites. Ground-nesting bird species are particularly vulnerable to urbanization and the conversion of grasslands into agricultural land. Overgrazing by livestock further endangers these habitats, often leading to trampling of nests, eggs, and chicks. Additional threats include predation by domestic animals, such as dogs, and disturbances caused by human activities, including the use of fire for land management.

Challenges include habitat degradation, poor land-use planning, and the invasion of non-native species. Since sacred groves are often neither designated 'protected areas' nor officially classified as 'forests', they are commonly treated as sources for fodder and firewood, with little attention given to their ecological value. There is also a noticeable lack of scientific management practices or conservation plans to preserve their sanctity and biodiversity.

Legal Status and Protection

Given their immense ecological and cultural value, sacred groves must be accorded formal legal protection. As recommended by the Supreme Court, there is a need to grant legal status to sacred groves within conservation frameworks. In addition to strengthening existing

DEBI GOENKA

A Myristica Swamp Devrai near Tillari in Sindhudurg district, Maharashtra

protected areas (PAs) and eco-sensitive zones, the PA network must expand to include sacred groves.

The Wild Life (Protection) Act, 1972 (as amended in 2006), allows for the designation of 'Community Reserves' and 'Conservation Reserves', providing a pathway for legal protection of these groves on community lands and government lands respectively. Additionally, sacred groves could be recognized as Biodiversity Heritage Sites under the Biological Diversity Act, 2002 (as amended in 2023). They may also qualify for designation as Ramsar Sites (under IUCN guidelines), Important Bird and Biodiversity Areas (IBAs as documented by BNHS), Key Biodiversity Areas (KBAs), or Other Effective area-based Conservation Measures (OECMs) on private lands. These designations would offer both protection and formal recognition, ensuring their conservation for future generations. In December 2022, Parties to the Convention on Biological Diversity (CBD) agreed to conserve 30% of the Earth's land and sea areas by 2030 – an ambitious goal known as Target 3 under the Kunming-Montreal Global Biodiversity Framework. However, achieving this target poses significant challenges, particularly for countries within the Central Asian Flyway region. Sacred groves play an important role in climate change mitigation by serving as carbon sinks. Therefore, their preservation is essential to achieving India's 30–30 target. These groves could be considered for inclusion within the Protected Area (PA) network to enhance their conservation status and contribute to national biodiversity goals.

Recommendations

Several studies emphasize the urgent need for comprehensive management plans for sacred groves, to be developed through the involvement of all stakeholders. These plans should address existing threats and promote Nature-Based Solutions (NbS) to support long-term ecological and community resilience.

The restoration of degraded Orans and the implementation of institutional mechanisms to enhance community-based management practices are critical steps forward. Publications such as the ORAN ATLAS OF ARAVALLIS OF RAJASTHAN can support the development of State Biodiversity Strategies and Action Plans and help strengthen resilience in the face of climate change.

The Wild Life (Protection) Act and the National Biodiversity Action Plan (NBAP) can play a key role in these efforts by incorporating new policies that emphasize the conservation and sustainable management of sacred groves, particularly grasslands and wetlands. ■

Kishor Rithe, Director, BNHS, has been working for wildlife conservation through sustainable livelihoods, conservation action, advocacy, and policy for over three decades.

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